CLAIMS

1. An apparatus for transferring data packets comprising:

a first node including a first end of a first channel and a first end of a second channel;

a second node including a second end of a first channel and a second end of a second channel;

a physical connection joining said first node and said second node through which signals of both said first channel and said second channel are carried;

a first controller connected to said first end of said first channel and a second controller connected to a first end of said second channel, said first controller and said second controller being in communication and controlling interleaving of data through said physical connection.

2. The apparatus according to claim 1, further comprising a third controller connected to the second end of the first channel and a fourth controller connected to the second end of the second channel, said third and fourth controllers being in communication with each other.

3. The apparatus according to claim 2, said first controller and said third controller being in communication and said second controller and said fourth controller being in communication.

4. The apparatus according to claim 1, said second node further comprising a queue for receiving data packets from said second end of said first channel and said second end of said second channel and for delivering said packets to a processor bus.

5. The apparatus according to claim 4, wherein said processor bus carries data according to a different type of resource sharing paradigm than said physical connection.

6. The apparatus according to claim 1, wherein said first node and said second node are connected by a second physical connection which carries both a third channel and a fourth channel.

7. A method for transferring data, comprising:

connecting a first node and a second node with a physical connection;

connecting one end of said physical connection to one end of at least two channels and connecting the opposite end of said physical connection to the other end of said at least two channels;

interleaving flits from said two channels along the physical connection.

8. The method according to claim 7, further comprising reforming said flits into packets at the other end of said channels.

9. The method according to claim 8, further comprising storing said reformed packets in queues for transfer to a processor bus.

10. The method according to claim 9, wherein said processor bus transfers data in a different type of resource sharing paradigm than said physical connection.

11. The method according to claim 7, wherein said flits are interleaved when there is no valid data available in one channel, one channel or is receiving backpressure from a receiver.

12. The method according to claim 7, wherein more than two channels are connected to said physical connection.

13. A system for transferring data packets comprising:

a first node;

a second node;

at least one physical connection connecting said first node to said

second node;

a processor bus connected to said second node;

a first data channel and a second data channel each having a first end in said first node and a second end in said second node, and both channels being carried by said physical connection;

said channels carrying data packets divided into flits, with flits from both channels being interleaved in said physical connection without bubbles.

14. The system according to claim 13, wherein said flits are reformed into packets in said second node for transfer to said processor bus.

15. The system according to claim 14, wherein data is transferred from said first node to said second node with one type of resource sharing paradigm and transferred from said second node to said processor bus with a second type of resource sharing paradigm.

16. The system according to claim 15, wherein said second node includes queues for holding said reformed packets.